PROJECT NUMBER: 1307
PROJECT TITLE: Reconstituted Tobacco Development
PROJECT LEADER: R. G. Uhl
PERIOD COVERED: July, 1987

I. IMPROVED SHEET PROPERTIES

A. Objective: Improve the physical characteristics and blend performance of reconstituted sheet materials.

B. Results:

1. ART Project - During the July shutdown period, the BL Plant produced an additional 55M lbs of washed stem for ART pilot plant use. Coupled with June production, this should meet projected needs through year end. These are mostly bright stems (1, 2, 3 or 4 fresh water washes), plus some 4X washed burley stems. Larger quantities of BL Plant 1X washed burley stems are available from production inventory.

   R&D participated in off-site Engineering trials to evaluate the Rietz V-Press for use in stem washing. The unit accepted any tobacco slurry fed to it. Attrition was minimal, even with shredded stems. Press cake OV was 64-72%. However, the press seals leak considerable amounts of liquor, and the press liquors have a high fines content.

2. Humectant Rearrangement - The first three humectant rearrangement POL tests (test blends made with reduced humectant level sheets) are closed out and data is under analysis. Cigarettes for the three replicate POL tests have been completed in Semiworks.

3. Alternate Evaporator Technology - POL cigarettes to evaluate the Engineering Wiegand thin-film evaporator test at Park 500 have been sent to the panelists. Cigarettes for the replicate POL are being screened for mailout approval.

4. TTG Support - BL Plant RCB made with Malaysian feedstocks survived much better than control RCB, and gave sieve profiles (exit cutter, dryer, maker garniture) typical of RL. The test containing humectants did particularly well, and was long and stringy enough to cause problems at the maker (100% sheet). This sheet had a higher tensile than the control (0.9 vs 0.7) at a lower sheet weight (10.0 vs 11.1). The test sheets had a higher stem content (65%); the stems were unwashed; the stems were ground and fed in through the CT system. Cigarettes (100% only) were produced on small scale for subjective screening.

5. Sidestream Reduction - RCB handsheets were made with up to 30% magnesium hydroxide to evaluate filler incorporation for sidestream reduction mechanism studies. At 10% and above, the sheets became progressively lighter in color and developed belt-release properties, but the slurries gelled quickly, the

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sheets became progressively brittle and piece size (after shredding) was drastically reduced. Some handmade cigarettes were produced from all but the 30% sample.

C. **Plans**:

1. Expedite subjective evaluation of pilot RL containing Bremen-4 ART stems.

2. Evaluate Quaker Yankee dryer release agents.

3. Produce PGG-free sheets for the Humectant Replacement Group.

II. SUBJECTIVE MODIFICATION OF RL

A. **Objective**: Improve or modify the subjective character of RL.

B. **Results**:

1. The production of POL cigarettes to evaluate RCB and RL-150B made with dry flavor replacements has been scheduled for August in Semiworks.

2. POL cigarettes to evaluate Park 500 Modified 150B (5% DAP) replacing standard 150B plus 3% and all of the RCB, and as a total replacement for all sheet, have been scheduled for August in Semiworks.

3. Efforts to eliminate the magnesium/calcium phosphate precipitate from Modified 150B size continued. SEL was treated with DAP (and adjusted to several pH levels with ammonium hydroxide) to pre-form the precipitate and allow its removal with the normal SEL centrifuge sludge. Alkaloid-like off-odors were noted during liquor processing and sheet drying, and there was a considerable falloff in evaporation rate. Analytical and subjective results are pending.

4. Magnesium salt removal from DN-CEL has been demonstrated, but this would require an additional 2-stage centrifuging step at Park 500. Current efforts are attempting treatment of undenitrated CEL to remove magnesium along with the potassium nitrate co-product.

5. Laboratory investigation of other sequestering agents indicates that tripolyphosphates sequester magnesium and calcium in a non-precipitate form, eliminating the need for removal. Larger quantities have been ordered for pilot scale trials.

C. **Plans**:

Continue pilot and laboratory programs to eliminate magnesium phosphate precipitate.

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